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# American Printing House for the Blind

INCORPORATED

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## I N S T I T U T E   R E P O R T

on

Map Reading for Primary Grade Visually Handicapped Students

held at

American Printing House for the Blind  
Louisville, Kentucky  
January 13-15, 1972

Frank L. Franks  
Educational Materials Research and Development Section  
Instructional Materials Reference Center

June 1, 1972



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# I N S T I T U T E   P R O G R A M

## Map Reading Institute

American Printing House for the Blind  
Louisville, Kentucky  
January 13-15, 1972

### Thursday

#### At APH

- |               |   |
|---------------|---|
| 8:00 - 9:00   | Tour of the Printing House (optional)   |
| 9:15 - 10:00  | Welcome, Introductions, Purpose of the Institute  |
| 10:30 - 12:00 | Presentation of landforms now in production   |
| 1:15 - 2:30   | Discussion: Instructional materials needs in Social Studies, K-12 (excluding map reading materials)                           |
| 2:30 - 4:30   | Summary session: General and specific instructional materials needs in Social Studies, K-12 (excluding map reading materials) |

### Friday

#### At Seelbach

- |               |   |
|---------------|---|
| 8:00 - 10:00  | Presentation of introductory map reading materials in developmental stage |
| 10:00 - 12:00 | Review of introductory map reading materials for primary grade level      |
| 1:30 - 5:00   | Continuation of review  |

### Saturday

- |               |   |
|---------------|---|
| 8:00 - 10:30  | Summary session: Instructional materials needs for introducing map reading to young visually handicapped students |
| 10:30 - 12:00 | Overall summary session   |

Please note that first day sessions will be held at the American Printing House for the Blind, 1839 Frankfort Avenue, and sessions on Friday and Saturday will be held at the Seelbach Hotel.

Morning and afternoon breaks will be taken between sessions.

The Social Studies Institute focused on deficits in map reading viewed in terms of needs across the social studies curriculum, with emphasis on the introductory or primary grade level. The Institute was asked to review the APH Introductory Map Reading Project which contains an instructional program with relief maps developed to introduce map reading to very young visually handicapped students. A number of comments specific to the instructional program reviewed appear in Section I.

Other curriculum areas in social studies also were examined to determine where deficits in instructional materials are believed to exist for visually handicapped students, to identify specific aids necessary for teaching basic concepts in these areas, and to suggest priorities for development of relevant educational aids and materials.

## SECTION I

### Introductory Map Reading Project

An instructional program with relief maps will be developed for introducing map reading concepts to young visually handicapped students. Specifically, the materials will be used to expose students to geographical features, to provide general map orientation, and to introduce tactile symbols which will be included in a subsequent study on teaching skills in map reading.

A description of the instructional program and relief maps which were presented in the Institute follows.

The instructional program consists of sequential lessons which should provide the foundation for the development of a geographical point of view by young visually handicapped students. The activities included in



the instructional program are based on concepts related to map reading which appear generally in the social studies curriculum and in map reading materials in the primary grades. The instructional program is divided into three levels (I, II, and III). These levels correspond roughly to concept areas in grades 1-3 and cover a grade range of three years. The instructional program emphasizes activities in the following concept areas:

- 1) Location
- 2) Direction
- 3) Elevation
- 4) Scale--distance
- 5) Symbols (areal, linear, point)

The instructional program includes a set of maps in relief which will introduce areal, point, and linear symbols. These symbols will be used to represent those features in the environment which are characteristic of features which appear on raised line maps in braille textbooks and atlases. At Levels I and II only those features are represented which the student can experience in his own environment (e.g. hill, lake, church, school). Level III includes features in the environment which are typical of but not common to each student's environment (e.g. motel, airport, zoo). The instructional program, however, allows considerable flexibility and encourages the teacher to substitute actual environmental features for those which may not exist in the student's community.

The areal, linear, and point symbols used in the project were found by Nolan and Morris (1971) to be highly discriminable when used in combination with each other. The point symbols, however, are larger than

those tested by Nolan and Morris.

The size of the maps has been held to approximately ten square inches. When the map is bisected vertically and horizontally each quadrant approximates the hand span of a small child.

Findings cited by Wiedel and Groves (1969) which were considered in the development of the relief maps used in this project follow:

- 1) Tactual maps must hold enough information to meet the needs of the user but not so much as to confuse them.
- 2) Clutter can be partly eliminated by the use of different elevation for different symbols...
- 3) The north edge of the sheet (map) should be marked--a north indicator is not adequate.

The relief maps in this project are chromatically and tactually cued.

The following suggestions and recommendations on the Introductory Map Reading Project were made by participants in the Institute:

1. In the absence of appropriate introductory and readiness map reading materials for primary grade visually handicapped students, the map reading project examined by the Institute is supported in content and approach. There is an immediate need for these materials. The Institute is not aware of any appropriate educational materials which teach the concepts introduced in this instructional program.
2. It is imperative that the personal aspects in the development of the visually handicapped student parallel those of his academic development. The members of the Institute recommend that upon completion and evaluation of this map reading project, the project again be reviewed for purposes of incorporating a personal dimension within the program. This personal dimension would apply the basic concepts

presented in the instructional program and would facilitate interaction of the student with his environment. Where appropriate, activities involving the personal dimension should parallel map activities, and should be presented as part of a comprehensive program built upon relating these concepts to maps. The program would incorporate activities that are necessary for the student to function in his environment, and these activities would be directly correlated with map reading readiness and exploration of the environment.

3. Introduction of the geographical Landform Models (APH Cat. No. 1-0332) should be considered prior to presenting the Introductory Map Reading materials. The Map Reading materials might be introduced more meaningfully when readiness is demonstrated through comprehension of geographical concepts presented in the primary level unit of the Landform Models.
4. The Institute recognizes the need for associating each map symbol with an appropriate geographical feature in the immediate environment. The teacher is encouraged to substitute appropriate geographical features for those presented in the instructional program which may not exist in the student's environment. (If there is no motel in the student's community, the teacher should substitute fire station, bakery, or some appropriate geographical feature.)
5. It is recommended that the use of keys on maps for young visually handicapped students be delayed until such time as map reading skills are formally introduced.



6. Teachers' manuals containing instructional procedures should be provided with the Introductory Map Reading materials. The Institute recommends that the instructional program be utilized as a guideline to instruction. (The participants encourage innovation and creative activities which reinforce and expand the concepts presented as opposed to a verbatim repetition of the manual's instructions.)
7. The Institute recommends that the word "landform" be deleted and the word "map" be used throughout the instructional program.
8. The quotation marks should be excluded from the instructional program.
9. Participants agree that the words "up" and "down" and "top" and "bottom" should not be used as directional referents in introducing map reading. "Near" and "far" and cardinal directions (North, South, East, and West) are more appropriate and are less confusing.
10. Participants suggest a follow-up Institute to review and monitor the development of an adequate instructional program in map reading leading to the development of geographical concepts at the primary grade level. The follow-up Institute should emphasize personal dimension aspects as indicated in Item 2, this section.
11. Participants request prototypes and instructional programs to review, when the materials are available.
12. The Institute recommends that a workshop or inservice training be conducted by APH with a number of teachers from a cross-section of programs for visually handicapped students. The purpose of this workshop should be the instruction of teachers in how to use the Introductory Map Reading materials. The lack of adequate instruction

and workshop training in the use of new instructional programs was noted as a significant deficit in social studies curricula.

### Simplified Continental Relief Map Project

A set of relief maps will be developed for introducing the continents to young visually handicapped students. This set of maps is suggested for presentation to students after they have learned geographical features on the APH Landform Models (Franks and Nolan, 1970, 1971; Franks and Baird, 1971a, 1971b). The geographical features in the studies cited above were presented on vacuum-formed relief maps specially designed to introduce the features as they might appear on relief maps. The features were not presented on actual maps nor were references made to the continents on which individual features are prominent landmarks. This project proposes to present these conspicuous geographical features on simplified relief maps to allow young blind students to learn location of the most prominent geographical features on continents.

The reading of simple maps and globes, along with informal interpretative experiences, comprises the major emphasis in map study at the primary grade level.

A summary of skills and understandings on continents (Denoyer-Geppart, 1970) at the primary level follows:

#### Grade I

Recognizes that friends and relatives live in various places in the community, state, nation, and other parts of the world

Learns the names of his city, state, and country and locates them on a globe

Locates places of vital current interest in the community, state, nation, and world on maps or globes

## Grade II

Recognizes his city, state, and country on a map or globe and understands that they are in a large land mass or continent called North America

Uses the globe and wall maps to locate areas in the news and to relate them to his community

## Grade III

Understands the concept of continents as large masses of land and oceans as large bodies of water; locates them on maps and globes

Locates places in relation to continents and bodies of water

Recognizes similarities between areas introduced on a globe and the same areas on a map

Learns to identify specific landmarks, such as an unusual coastline or other conspicuous natural feature, and uses the information to locate places on maps or globe

Relates current happenings in the state, nation, and world to areas on maps and globes

The need for simplified continental relief maps for primary grade visually handicapped students was discussed. A rough simplified model of North America was presented to the Institute for comment.

The following suggestions and recommendations on simplified continental relief maps for young visually handicapped students were made by participants in the Institute:

1. A need for simplified continental relief maps exists. The APH Plaques are not adequate for use by younger (elementary) blind students.
2. Indication of scale should be included on each map.
3. Notation of scale differences in the various maps and other relevant information not on the map should appear in accompanying written materials.

4. The Institute agrees that three colors would be desirable for coding water, land, and the higher mountain areas. An additional color on the highest mountain peaks for use by low vision students is suggested, if it does not substantially increase the cost of the set of maps.
5. Neither longitude and latitude nor directional referents should be included on these nor any other introductory relief maps.
6. The continental relief maps should be used in conjunction with the globe to teach location and direction.
7. Use of the Landforms is suggested for teaching or reviewing specific geographical concepts which appear too small for clear inspection on the continental relief maps.

## SECTION II

Additional suggestions and recommendations in the following areas were made in discussion sessions on materials needs in social studies.

### Atlases

1. The Institute recommends that a panel composed of teachers, high school blind students, and other appropriate specialists and consumers be formed to evaluate braille atlases currently produced by APH and to make recommendations for improving atlases.
2. A general atlas should be prepared for use with textbooks at appropriate grade levels rather than the preparation of a separate set of atlases for each social studies series.



3. It is recommended that efforts be made to correlate and standardize the map symbols and scales throughout to minimize confusion.

#### Outline maps

1. Individual desk-size (12" x 16") outline maps of individual states showing (as space allows) the capital, chief cities, and rivers are needed.
2. It is not essential for these individual state maps to be of uniform scale since they can be used in conjunction with available scaled U. S. maps. The scale for each map should be considered for each state individually.
3. The inclusion of other kinds of information (e.g. population centers, transportation arteries) on state outline maps should be considered.

#### Cassettes

1. The utilization of cassettes for appropriate instructional materials (when available) should be considered in the final packaging of social studies educational aids, including the Introductory Map Reading materials. Students would be able to review materials with a minimum of supervision, and older students would be able to progress independently at their own rate.
2. Tone indexing of cassette instructional materials in social studies and map reading should be considered when tone indexing has been perfected.



### Models

1. Educational Models in social studies should be utilized wherever possible to facilitate learning. Models may be used to introduce or reinforce concepts. A model provides a "Gestalt"--the image of the whole--which non-vision students generally cannot gain, either visually or tactually in reality. Models should be used in conjunction with real features and items in the environment where possible.
2. Models should be developed in terms of scaled perspective. In a collection of animal models, a horse should appear larger than a dog.
3. The possibility of attaching two thermoform models together to form a whole model should be investigated. The cross-sectional models developed at APH are good, but additional information can be presented by combining component parts to form whole models.
4. The difficulty with many available models is their highly visual orientation, their excessive detail, and their fragile construction. Sturdy, simplified "pull-apart" models with a minimum of detail should be considered when developing educational aids.
5. Although accompanying instructional programs are valuable and desired, participants feel that having the models available is of higher priority than having the instructional programs. Existing curricula contain instructional programs which could utilize the models.
6. It is recommended that the IMRC/APH explore the possibility of developing a central catalog of sources of appropriate educational models.

7. The Institute recommends that sets of appropriate social studies models be developed. Among the collections suggested are:
  - a) Strata, cross sections of the earth, rock formations
  - b) Rock and mineral collections, with weight differences and differences in tactual surfaces; shell collections; building material samples; etc.
  - c) Historical models
  - d) Architectural models and styles; progression of architectural structures
  - e) Animals
  - f) Transportation vehicles
8. The possibility of APH developing models which can be made available on a rental basis--on quota--to educational programs should be explored. Models in this category would be those which might be too expensive for purchase by individual programs.

#### Overall Recommendations

1. The need for developing three-dimensional aids to which concrete experiences and geographical features can be anchored is emphasized. Such materials are recognized by the Institute as important educational aids to assist young visually handicapped students in making a better transition from the real environment than attempts to illustrate the environment through abstract raised-line drawings in braille textbooks.
2. Simplified "pull-apart" models with a minimum of detail should be considered when developing tactual materials (e.g. cross-section of

the earth, rock formations).

3. No braille or minimal braille should be embossed on individual educational aids or materials developed for use at the primary grade level. If and when braille is needed, dymotape or other techniques can be used for labeling those parts which the teacher wishes to emphasize. Learning to manipulate or utilize an instructional aid should not be complicated by, nor the student distracted by, the appearance of braille characters on the aid.
4. Teachers' manuals should be included with educational aids. These manuals should be in outline or abbreviated form to allow flexibility and creativity in their use.
5. Displays of educational aids at national and regional meetings and at special conferences and workshops should be supplemented with demonstrations by professional personnel who are qualified to discuss the educational implications of the materials.
6. Although the APH social studies educational aids (Landforms and Introductory Map Reading materials) examined were developed to introduce basic concepts to young visually handicapped students, the participants feel that the materials have educational implications for most students throughout the social studies curriculum. Therefore, these materials are recommended as instructional and reference aids wherever and whenever needed in the social studies curriculum.
7. It is recommended that the final report of the Social Studies Institute on Map Reading materials be presented in the AEVH Social Studies Workshop (Miami, 1972) with members of the Institute serving as a panel to present and discuss the Report.

8. The Institute commends APH for inviting participants who are actually involved in the teaching process. It recommends that APH continue to utilize such institutes as a means of evaluating the educational aids it develops.
9. The Institute suggests further APH field involvement. The feasibility of educators and consultants assisting APH in the development of instructional programs should be explored, with possible utilization of teachers during summer vacation and sabbatical leave.

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